

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
10 February 2005 (10.02.2005)

PCT

(10) International Publication Number  
**WO 2005/012527 A1**

(51) International Patent Classification<sup>7</sup>: **C12N 15/12,**  
15/86, 7/00, 5/10

(21) International Application Number:  
PCT/IT2004/008234

(22) International Filing Date: 20 July 2004 (20.07.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/489,237 21 July 2003 (21.07.2003) US

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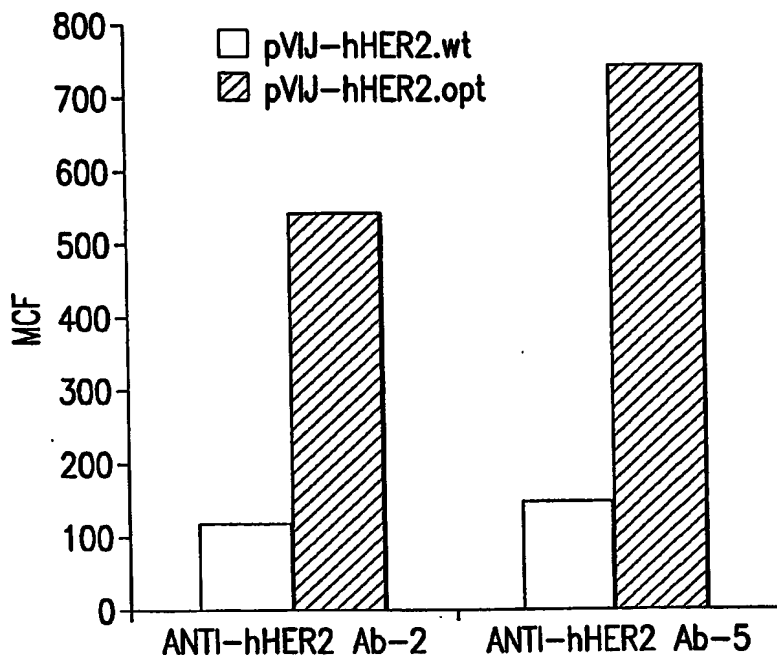
(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PI, PL, PT, RO, RU, SC, SE, SG, SK, SL, SY, TJ, TM,  
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,  
ZW.

(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,

[Continued on next page]

(54) Title: **SYNTHETIC GENE ENCODING HUMAN EPIDERMAL GROWTH FACTOR 2/NEU ANTIGEN AND USES  
THEREOF**

**IN VITRO EXPRESSION OF HER2**  
**HEK-293 CELLS**



(57) Abstract: Synthetic polynu-  
cleotides encoding human HER2/neu  
or a truncated form thereof, are  
provided, the synthetic polynucleotides  
being codon-optimized for expression  
in a human cellular environment. The  
gene encoding hHER2 is commonly  
associated with the development of  
human carcinomas. The present  
invention provides compositions and  
methods to elicit or enhance immunity  
to the protein product expressed by  
the hHER2 tumor-associated antigen,  
wherein aberrant hHER2 expression  
is associated with a carcinoma or  
its development. This invention  
specifically provides adenoviral  
vector and plasmid constructs carrying  
codon-optimized human HER2 and  
codon-optimized truncated HER2,  
and discloses their use in vaccines  
and pharmaceutical compositions for  
preventing and treating cancer.

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- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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